

Appl. No.: 09/675,920  
Reply to Final Office Action of June 30, 2005

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application.

Listing of the Claims:

1. (currently amended) A printing system comprising
  - a) a host device for executing programs;
  - b) an office machine having a print engine for receiving print engine ready data and based thereon for rendering images and a PC card slot for receiving PC cards; wherein the office machine does not have a printer controller and
  - c) a PC card for removably coupling with the PC card slot of the office machine and for coupling with the host device, the PC card having a formatter printer controller integrated circuit for providing formatter printer controller functions, the formatter printer controller integrated circuit for receiving printer formatter controller ready data from the host device and based theron for generating print engine ready data; whercin the office machine requires the PC card with printer controller to be coupled thereto to render images; and wherein the printer controller may be replaced or upgraded by a user without intervention of the manufacturer of the office machine.
2. (currently amended) The printing system of claim 1 further comprising:

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- d) printer formatter controller firmware that when executed by the printer formatter controller causes the printer formatter controller to perform formatter printer controller functions;
  - e) printing software having an automatic update module that when executing on the host device automatically downloads to the host device from a source one of an updated version of printer formatter controller firmware and the printing software.
3. (original) The printing system of claim 2 wherein the source is one of a web server and a computer readable medium.
4. (currently amended) The printing system of claim 2 wherein the automatic update module when executing on the host device automatically downloads to the printer formatter controller an updated version of printer formatter controller firmware.
5. (currently amended) An office machine comprising:
  - a) a laser print engine for rendering images; and
  - b) PC card slot coupled to the laser print engine for receiving a removable PC card that includes a printer formatter controller; wherein the PC card slot is utilized to transfer formatter output from the printer formatter controller to the rendering laser print engine; wherein the office machine requires the PC card with printer controller to be coupled thereto to render images; and wherein a defective printer controller may be replaced by an operational printer controller or an out-dated printer

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controller may be upgraded with a new printer controller by removing the PC card with the defective or old printer controller from the office machine and by inserting a new PC card with the operational or new printer controller into the office machine.

6. (original) The office machine of claim 5 further comprising:
  - c) a print engine ready data interface for coupling to a PC card and selectively receiving print engine ready data therefrom.
7. (currently amended) The office machine of claim 5 wherein the office machine is one of a laser printer, inkjet printer, and an all-in-one laser office machine.
8. (currently amended) A removable PC card for removably coupling with corresponding card slot in a laser office machine comprising:
  - a) a formatter printer controller integrated circuit for providing formatter printer controller functions; and
  - b) a connector having a print engine ready data interface for coupling to the laser office machine and selectively receiving print engine ready data therefrom;

wherein the PC card is adapted for insertion into a corresponding PC card slot in the printer laser office machine and wherein the formatter printer controller integrated circuit may provide formatter printer controller functions to the printer laser office machine when coupled thereto; wherein a defective printer controller may be replaced by an operational printer controller or an out-dated printer controller may be upgraded

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with a new printer controller by removing the PC card with the defective or old printer controller from the laser office machine and by inserting a new PC card with the operational or new printer controller into the laser office machine.

9. (original) The removable PC card of claim 8 further comprising:
  - c) a connector having a printer formatter ready data interface for coupling to a host machine and selectively receiving printer formatter ready data therefrom.
10. (currently amended) A method of printing in a system that includes an office machine having a print engine and a slot for receiving a PC card, a PC card for removably coupling to the office machine, the PC card having a printer formatter controller and a memory for storing a printer formatter controller program, a host having a printing software, the method comprising:
  - a) determining whether the PC card has been operationally coupled to the slot of the office machine;
  - b) when it is determined that the PC card has been operationally coupled to the office machine, then determining whether the printer formatter controller program is loaded in the memory of the printer formatter; otherwise proceeding to step (a);
  - c) when it is determined that the printer formatter controller program is loaded in the memory, then determining whether the printer controller program is valid; otherwise, loading the printer formatter controller program into the memory and repeating step (c);

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- d) when it is determined that the printer formatter controller program is valid, then determining whether the printer formatter controller program is compatible with the print engine, the printing software and printer formatter;
  - e) when it is determined that the printer formatter controller program is loaded, valid, and compatible with the print engine, the printing software and printer formatter controller, then sending data to be printed to the printer formatter controller.
11. (original) The method of claim 10 further comprising:
- d1) when the printer controller program is one of not loaded, invalid, and incompatible, then notifying a user of the incompatibility.
12. (original) The method of claim 10 further comprising:
- d1) when the printer controller program is one of not loaded, invalid, and incompatible, then downloading the printer controller program to the memory.
13. (previously presented) The method of claim 12 wherein downloading the printer controller program to the printer controller further comprises: downloading the printer controller program from the host to the memory.
14. (previously presented) The method of claim 12 wherein downloading the printer controller program to the printer controller further comprises: downloading the printer controller program from a web site to the memory.

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15. (previously presented) The method of claim 10 wherein determining whether the printer controller program is valid further comprises:  
performing a cyclic redundancy check on the printer controller program.
16. (previously presented) The printing system of claim 1 wherein the PC card includes a form factor that is one of a form factor of the Personal Computer Memory Card International Association (PCMCIA) type I card, a form factor of PCMCIA type II card, and a form factor of PCMCIA type III card.
17. (previously presented) The removable PC card of claim 8 wherein the PC card includes a form factor that is one of a form factor of the Personal Computer Memory Card International Association (PCMCIA) type I card, a form factor of PCMCIA type II card, and a form factor of PCMCIA type III card.
18. (previously presented) The office machine of claim 5 wherein the PC card slot receives PC cards having a form factor that is one of a form factor of the Personal Computer Memory Card International Association (PCMCIA) type I card, a form factor of PCMCIA type II card, and a form factor of PCMCIA type III card.